

What is claimed is:

1. A lens barrel comprising:
 - a plurality of lens groups:
 - a cam cylinder having a cam to move at least a portion of said plurality of lens groups toward positions corresponding to a predetermined photographing state and a predetermined collapsed state along an optical axis;
 - a cam follower to move said portion of lens groups by engaging with said cam and rotating relatively to said cam cylinder along said cam; and
 - an elastomer for biasing said cam follower along said optical axis to slide the cam follower on said cam, a biased force of said elastomer varying in response to a moved position of said cam follower;

wherein a developed shape of said cam has different angles to an imaged plane depending on a position in a collapsible region in which said cam follower is moved from a photographing state to a collapsed state.
2. The lens barrel according to claim 1, wherein said cam includes a sliding surface for engaging with said cam follower and said sliding surface in the developed shape of the cam is formed from a configuration in which a plurality of surfaces having different angles to the imaged plane are connected successively.
3. The lens barrel according to claim 1, wherein said cam includes a sliding surface for engaging with said cam follower and said sliding surface in the developed shape of the cam is formed from a curved surface varying continuously at different angles to the imaged plane.
4. The lens barrel according to claim 1, wherein said elastomer includes a spring.
5. The lens barrel according to claim 1, wherein said elastomer is disposed between at least two lens groups of said lens groups.

6. The lens barrel according to claim 1, wherein said plurality of lens groups have first and second group lens systems, said cam includes first and second cam grooves each having sliding surfaces, said cam follower includes a first cam follower engaging with said first cam groove and a second cam follower engaging with said second cam groove, and

wherein said lens barrel comprises a fixing cylinder having first and second guide grooves in which the first and second cam followers are engaged and which extend straightly along an optical axis and holding rotatably the cam cylinder, a first moving cylinder disposed in said fixing cylinder to move along the optical axis for holding said first cam follower and first group lens system, and a second moving cylinder disposed in said fixing cylinder to move along the optical axis for holding said second cam follower and second group lens system,

said elastomer is disposed between the first and second moving cylinders to bias them in opposite directions, and

said first and second moving cylinders are moved along the optical axis by rotating relatively said cam cylinder relative to said fixing cylinder.

7. The lens barrel according to claim 6, wherein each of said sliding surfaces has a configuration in which a plurality of surfaces having different angles to an imaged plane depending on a position in the collapsed region are connected successively.

8. The lens barrel according to claim 6, wherein each of said sliding surfaces is formed from a curved surface in which angles to an imaged plane are varied continuously depending on a position in the collapsed region.

9. The lens barrel according to claim 3, wherein each of said sliding surfaces is formed from a curved-shaped surface in which a torque is substantially constant at the time of collapsing to the collapsed region.

10. The lens barrel according to claim 1, wherein said plurality of lens groups

include a zoom lens.

11. A camera comprising: a lens barrel;

said lens barrel including

a plurality of lens groups:

a cam cylinder having a cam to move at least a portion of said plurality of lens groups toward in a position corresponding to a predetermined photographing state and a collapsed state along an optical axis;

a cam follower to move said portion of lens groups by engaging with said cam and rotating relatively to said cam cylinder along said cam; and

a resilient body for biasing said cam follower along said optical axis to slide the cam follower on said cam, a biased force of said resilient body varying in response to a moved position of said cam follower;

wherein a developed shape of said cam has different angles to an imaged plane depending on a position in a collapsed region in which said cam follower is moved from a photographing state to a collapsed state.

12. The camera according to claim 11, wherein said camera is a digital camera.